the cylinder being flattened so as to yield to the expansion of the water forced in. By weighing this instrument full of water, before and after it had been submitted to the pressure, the quantity of water forced in was ascertained; whence it appeared that under a pressure of 326 atmospheres, the water had sustained an increase of $3\frac{1}{2}$ per cent. In a future communication the author proposes to detail the results of a new set of experiments on the compressibility of water, which he hopes will be susceptible of greater precision.

Astronomical Observations. *By* Stephen Groombridge, *Esq. F.R.S.* Read June 29, 1820. [*Phil. Trans.* 1820, *p.* 330.]

In the present improved state of astronomical observations, it is material to possess the readiest and most accurate means of finding the apparent time. The right ascension of certain fixed stars having been precisely obtained relatively with each other, and with the equinoctial points during the course of many years, affords the direct method of ascertaining the right ascension of the mid-heaven: hence the convenience of having the corrections of these stars in the form of tables, that the same may be taken out at one view with the arguments of the sun's longitude, and of the moon's node. For this purpose the mean diurnal motion is adapted to the longitude of the sun, as found in the Nautical Almanac, at the time the star passes the meridian. The mean epoch is reduced to the vernal equinox less four seconds, in order to render the corrections additive; which, being an universal period, the same applies to all parts of the world. To these tables Mr. Groombridge has subjoined some observations of the planets at and near the oppositions; also of the solstices of the last two years, and of the comet of 1819.

On the Black Rete Mucosum of the Negro, being a Defence against the Scorching Effect of the Sun's Rays. *By Sir* Everard Home, *Bart. F.R.S.* Read November 9, 1820. [*Phil. Trans.* 1821, *p.* 1.]

The use of the black rete mucosum of the negro is a subject which has fruitlessly engaged the attention of the physiologist. The author's mind was directed to this inquiry by the circumstance of a silver fish having its back scorched in consequence of the removal of some trees which shaded the pond in which it lived; this recalled to Sir Everard's recollection the circumstance of his having suffered severely from the scorching sun of the tropic, upon parts of the body protected from the direct rays of the sun by thin white linen, and led him to suspect that the noxious effects were derived not, as has commonly been supposed, from the mere heating power of the sun's rays, but from the joint agency of heat and light: he therefore made certain experiments, detailed in this paper, which show that the face and hands may be exposed to a temperature of 100° to 120°, without producing pain, provided light be excluded; but that if the same, or even an inferior degree of heat, be produced by the direct light of the sun, it